

HYPERTENSION DETECTION BY DENTISTS

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This paper is based on one presented by Mrs. Giovannoli at the meeting of the American Public Health Association in Atlantic City, November 13, 1972.

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COUNTLESS Americans who have undetected hypertension visit a dentist at least once a year. These persons experience no visible symptoms and they have no pain; yet, pathological changes are continuously taking place in their vital organs. An apparently healthy person with hypertension may eventually die of kidney disease, heart failure, or stroke. The tragedy of this situation is that screening for hypertension can easily be performed at the time of a dental examination.

The Bergen County (N.J.) Health Department became directly involved with screening for hypertension by dentists after Dr. Charles L. Berman, a periodontist in private practice, suggested

that dentists be encouraged to routinely take blood pressure readings. Impressed with this suggestion, we decided to conduct a 2-month pilot study to determine the feasibility of the concept and the significance of the results of the study.

Sixteen dentists in private practice offered to participate. They were recruited through the county dental society. These dentists met at the offices of the health department for orientation to hypertension and its effects, practice in using the sphygmomanometer, and brief instructions on collecting statistical data.

The dentists were encouraged to take blood pressure readings on all new and recall patients and to immediately refer patients with high readings to their physicians. For this study a high reading was defined as systolic blood pressure of more than 150 mm Hg or diastolic blood pressure of more than 90 mm Hg, or both (1).

We anticipated that many dentists would consider hypertension to be purely a medical problem and that their test results would be adversely influenced by contraindications such as a patient's nervousness or apprehension. Nevertheless, we believe that screening for hypertension by dentists is justified if insidious disease can be detected in persons who do not have periodic physical examinations.

In the early stages of hypertension a patient is not inclined to visit his physician, because he has no pain and no incapacitation of his bodily functions. Usually, even the most knowledgeable patient cannot sense the onset of hypertension; most people become concerned only when a medical crisis is apparent. At this stage in the history of medicine, physicians are still being forced to focus on curing illness rather than stressing its prevention. Although most physicians encourage their patients to have annual physical examinations, many patients do not do so.

In dentistry the situation is substantially different. The public is generally aware of the importance of seeing a dentist twice a year. People are sensitive to the need for oral hygiene and preventive dentistry, and they are aware of such conditions as dental caries and gingivitis that deteriorate the teeth and gums. By contrast, however,

the average person knows only that hypertension is an undesirable condition.

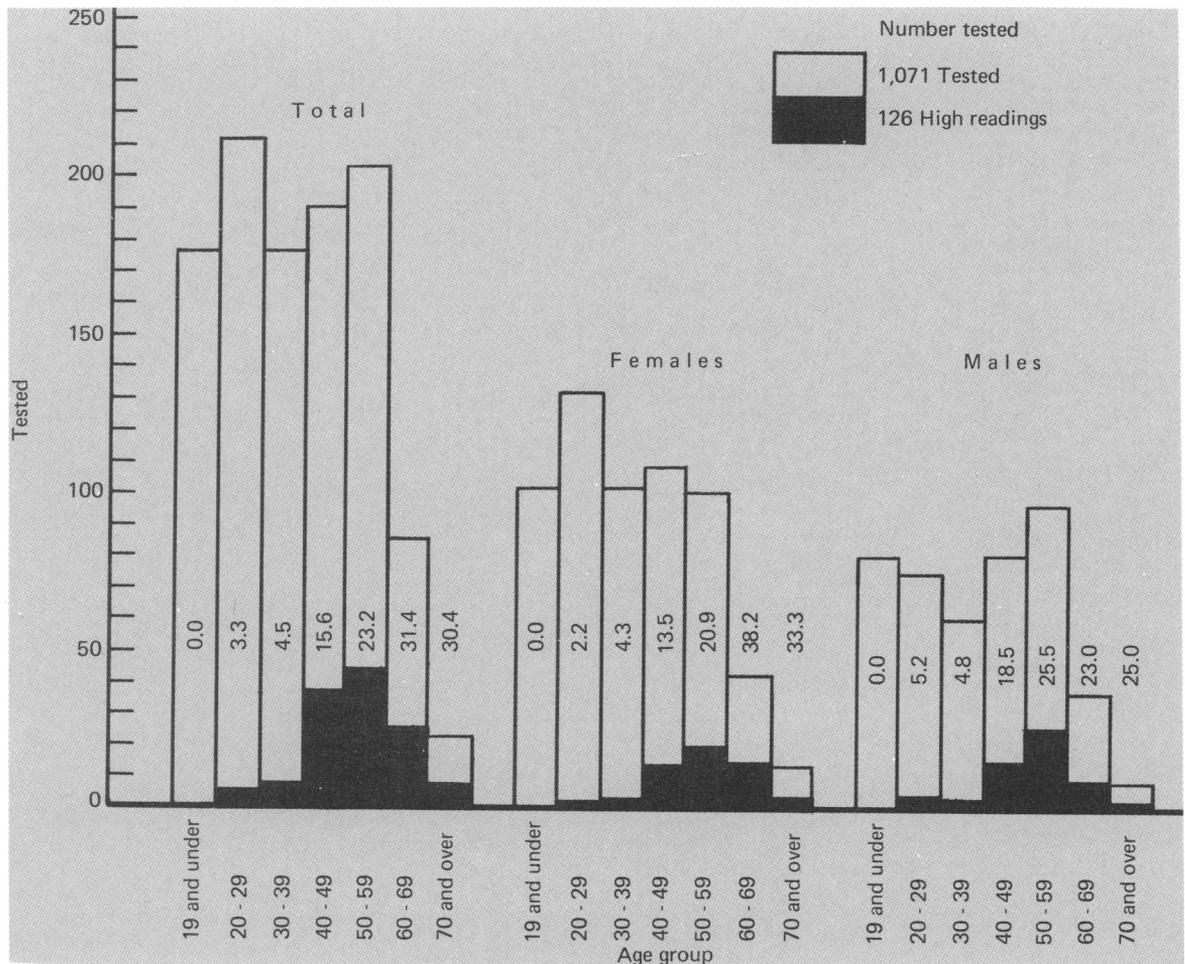
Another important reason why dentists are in a unique position to deal successfully with hypertension is that they have rapport with both patients and medical colleagues; thus they can insure that patients with possible hypertension can be referred quickly and smoothly. A dentist can impress the patient with the gravity of the disease, while also apprising the physician that his patient may have a serious undiagnosed disease.

In sum, then, in order to detect hypertension in its early stages, it is necessary to check a patient's blood pressure on a regular basis. The dentist is uniquely suited to do this.

Reactions to the Program

The Bergen County pilot program was successful because the medical and dental societies actively supported and cooperated with the county

Figure 1. Number of adults screened for hypertension by dentists and percentage in each group (figures in bars) with high readings—more than 150/90 mm Hg



health department in carrying out the hypertension screening. This partnership of physicians and dentists in a coordinated effort to reduce the dangers of hypertension resulted in a favorable reaction by many physicians, who were pleased to find that dentists are genuinely interested in dealing with what is essentially a medical problem.

Of course, cooperation of the patient in the detection and followup phases is vital. No screening program can succeed without the patient's cooperation in seeking a further diagnostic examination. Therefore, we are obliged to educate and motivate the public concerning hypertension and to counsel patients with elevated blood pressure. The fact that dentists included blood pressure readings in their routine examinations impressed many patients with the seriousness of the disease.

The media helped our program considerably, particularly in its early stages. Although we realized that the newspapers were primarily impressed with the novelty of dentists taking blood pressure readings, their background material on hypertension and their explanation of the screening procedure provided, for both patient and dentist, a common reference point which facilitated the counseling of patients.

Although the reaction from almost all concerned with the program was overwhelmingly positive, it would be misleading for us to omit a discussion of some negative reactions. The principal objection of some dentists was the time consumed in taking blood pressure readings—not that the procedure is lengthy, but rather that they had a set time for dental examinations and they found it difficult to adjust their time without initial inconvenience. The dental offices having oral hygienists seemed to adapt more easily to taking blood pressure readings.

Another problem was the unfamiliarity of dentists with the physiology and procedures involved in the evaluation and treatment of a possibly hypertensive patient. Thus, some dentists were initially reluctant to relate to the physician as a medical colleague. Although some physicians were slightly irritated by the referral of patients with borderline cases of hypertension, most appreciated that someone was helping them to help their patients.

Further doubts that the participating dentists may have had were dispelled by their patients' reactions. The patients appreciated having their blood pressure readings taken in the dental office.



Dr. Berman taking a blood pressure reading

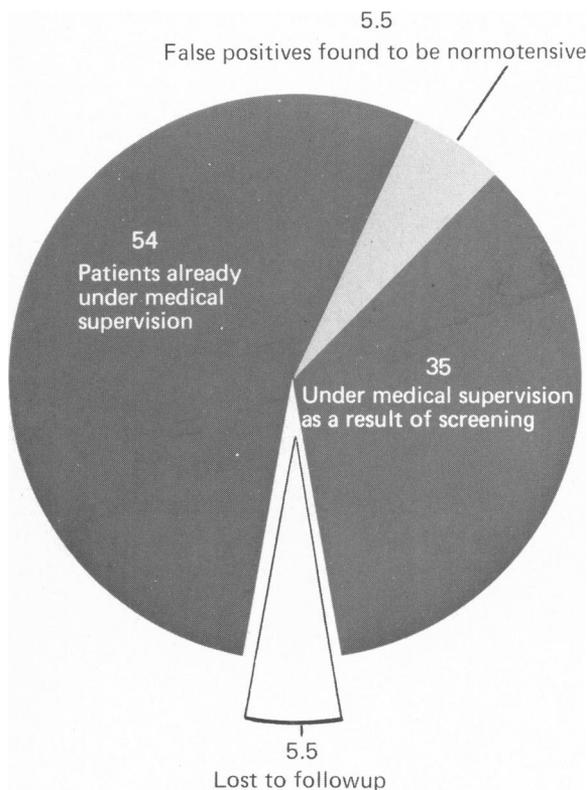
Not only did this expand their image of the dentist as someone concerned with all facets of health, but it strengthened their confidence in the dentist. The patients who were not previously aware of having elevated blood pressure were immediately encouraged to seek medical supervision. For those who were aware, the high readings obtained by the dentist reminded them of the seriousness of their condition. Regardless of the results obtained by the dentists, their patients were alerted to the seriousness of hypertension. Also, the dentists became more cognizant that using dental anesthetics combined with vasoconstrictors could be dangerous for persons with undetected hypertension.

Statistical Analysis

Before the statistical results of this program are examined, it is necessary to explain the method of data collection. As mentioned previously, the dentists were responsible for keeping accurate records of the screening process, as well as pertinent data necessary to the followup procedure. The results were collected by a health department representative, who conducted the followup of patients with high readings. A few dentists preferred to conduct their own followup and to mail the results to the health department.

The point we wish to make here is that the quality of statistics depends on the amount of care and control exercised in collecting them. Dentists are primarily concerned with patient care; they are not in the business of conducting statistical surveys. Therefore, inherent problems were realized throughout the program.

Figure 2. Followup results (in percentages) for 126 patients with blood pressures more than 150/90 mm Hg



During the 2 months of the study, blood pressure readings were taken for 1,343 patients in the 16 participating dental offices; 126 of these patients had elevated readings on one occasion or more. Of the persons with elevated blood pressure, 68 reported that they were receiving medical treatment for hypertension, and 58 reported that they had never received medical supervision for hypertension. Of the 1,343 screenees, 272 were children aged 4–18; however, their blood pressure findings and followup were inconclusive and thus not included in this report.

A comparison by age and sex of the adults with high readings with the ages of all adults tested reveals that as age increases for both sexes, a greater percentage of all patients have elevated blood pressure (fig. 1). Also, a sharp peak occurs at ages 50–59 for men with high readings. For women ages 40–69, the high blood pressure readings are more evenly distributed. Thus, for these two age groups, screening for hypertension by dentists could be most beneficial. Elevated blood pressure was detected in 12.9 percent of all the

men screened and 10.9 percent of all the women screened.

As shown in figure 2, of the 126 adults with elevated blood pressures, 68 (54 percent) were already under medical supervision for hypertension. Only seven (5.5 percent) persons were lost to followup because they had moved out of the country or had refused to seek further examination. Also, only seven (5.5 percent) patients referred by the dentists were determined to be normotensive by their physicians. Thus, the statistical significance of the pilot study is that 44 (35 percent) of the 126 persons with elevated blood pressure detected in the dental offices are now under medical supervision for confirmed hypertension.

Conclusion

The results of the pilot study indicate that dentists can be effective in detecting hypertension, and that a high percentage of patients they refer will follow through and seek medical care. It is likely that 10 percent of the patients screened will have some degree of hypertension and that about half of them will not have previously known it.

Immediately after the pilot program, the Bergen County Dental Society resolved that its membership endorse the principle of hypertension screening by dentists. The officers and board of trustees of the society are now conducting a program which includes instruction, guidance, and evaluation of hypertension screening procedures for all the dentists in the county.

Public health administrators are in an ideal position to catalyze and implement hypertension screening programs in dental offices. Through such programs, dentists can be instrumental in locating and referring for treatment some portion of the estimated 10.5 million Americans who are slowly being destroyed by hypertension (2).

Hypertension is analogous to dental caries. Both diseases cause irreparable deterioration, and both can be controlled if detected early. The difference is that undetected hypertension can cause death.

REFERENCES

- (1) Taubenhau, M.: The Massachusetts Health Protection Clinics. In *Health services administration*, edited by R. Penchansky. Harvard University Press, Cambridge, 1968, p. 280.
- (2) American Heart Association: *Heart facts*, 1972. New York, 1972, p. 8.